U.S. DOE Zero Energy Ready Home
Multifamily California Program Requirements Version 2 ***DRAFT***
Summary of Major Changes from California Version 1, Revision 8

Program Component	Version 1, Rev8 (California)	Version 2 (California)	Rationale
Built-In Best Practices (Mandatory Requirements)			
ENERGY STAR Prerequisite	Requires certification under the ENERGY STAR Multifamily New Construction California Program Requirements Version 1.3.	Requires certification under the ENERGY STAR Multifamily New Construction California Program Requirements Version 1.4.	Updates the ENERGY STAR prerequisite requirement to align with the most current program version for multifamily buildings in California
Window U/SHGC Values in Dwelling and Sleeping Units	Based on ENERGY STAR V5.0 and V6.0 specs, depending on 2021 IECC climate zone.	Based on 2022 California Building Energy Efficiency Standards (2022 BEES) for Multifamily Buildings Prescriptive values for U and SHGC.	Updated requirements are appropriate for multifamily buildings and improve alignment between CA code compliance and ZERH certification.
Duct System and Air Handler Location	Requires ducts to be located in conditioned space or another optimized location. Allows for the High-Performance Attic approach in 2016 BEES.	Requires ducts and the system air handler to be located in conditioned space or another optimized location. Allows for the High-Performance Attic approach in 2022 BEES (i.e., locating ducts and/or the air handler in a vented attic if the roof and ceiling insulation levels from Table 170.2-A Option B and duct insulation levels from Table 170.2-K are met).	Updated requirements ensure that heating and cooling air distribution system components are located to minimize losses. Also improves alignment between CA code compliance and ZERH certification.
Hot Water System Efficiency	Requires an efficient hot water plumbing layout or the use of high efficiency water heater + water conserving fixtures (and a backstop for stored volume in hot water piping)	Requires a maximum amount of stored volume in hot water piping (similar to V1) and adds pipe insulation requirements for central recirculating systems. These measures may also be achieved via compliance with 2022 BEES Appendix RA4 and Table 160.4-A, respectively. Requires WaterSense fixtures for in-dwelling showerheads, bath faucets and aerators.	Adds targeted measures to reduce water heating energy, improve overall building performance, and generate water use savings. Also improves alignment between CA code compliance and ZERH certification.
High Efficiency Lighting in Dwellings	90% requirement	100% requirement.	Recognizes the cost-effectiveness and availability of LEDs and increases ZERH efficiency.
Energy Efficient Appliances	All builder-installed refrigerators, dishwashers, and clothes washers are ENERGY STAR qualified.	All builder-supplied and installed in-dwelling refrigerators, dishwashers, clothes washers, and clothes dryers are ENERGY STAR qualified.	Recognizes ENERGY STAR labeling of clothes dryers and increases ZERH efficiency.
Indoor Air Quality	Certify under Indoor airPLUS (IAP) V1	Certify under IAP V1. Advises that DOE may consider requiring updated IAP provisions after they are released. Requires in-dwelling or central H/ERVs	Maintains requirement to certify under the IAP Version 1 program through at least 2024. Adds energy efficient

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		in Very Cold Climates (IECC Climate Zones 6-8).	whole-unit ventilation in very cold climates.
Photovoltaic (PV) Ready	Implement the ZERH PV-Ready Checklist in all locations with the requisite annual solar radiation.	PV-Ready Checklist is revised to specifically address Multifamily buildings and provides a solar-ready zone as defined by Appendix CB of the 2021 IECC, covering at least 40% of the roof area. Includes additional dead load in the design, conduit to the service panel, space for an additional breaker, and documentation of all solar-ready provisions. These provisions apply everywhere, regardless of annual solar radiation.	Increases PV readiness in multifamily buildings in a flexible manner to provide a streamlined opportunity to add renewable energy in the future. Readiness measures are not required if the building already has an on-site PV system.
Electric Vehicle Ready	No requirement	Provide EVSE, EV Capable, and EV Ready spaces for 40% of units or automobile parking spaces with designated capacity and connections as established by the EV-Ready Checklist.	Provides EV Charging infrastructure for a portion of parking spaces with provisions similar to draft 2024 IECC requirements.
Heat Pump Water Heater Ready	No requirement	Dedicated circuit is installed and energized for each installed fossil fuel water heater in dwellings. Space is reserved for a future electric (heat pump) water heater.	Lays the groundwork for the future installation of a HPWH and reduces retrofit cost and complexity.
Heat Pump Space Heater Ready	No requirement	For dwelling units with in-unit gas or propane water heating systems, compliance with 2022 California BEES' heat pump space heater ready requirements (Section 160.9(a)).	Lays the groundwork for the future installation of a heat pump for space heating and reduces retrofit cost and complexity. Harmonizes with CA code compliance.
Efficiency Threshold			
Minimum Required Energy Efficiency Threshold	A compliance total with ≥15% above the compliance total or ≥4 Delta EDR points above of the 2016 BEES standard design.	A whole-building compliance total (EDR2) ≥15% above the compliance total of the 2022 BEES Standard Design	Updated performance targets go beyond the state's current energy code as well as the most recent version of ENERGY STAR Multifamily New Construction for California
Program Compliance & Administration			
Certification of Multifamily buildings	Allows multifamily up to 5 stories, like ENERGY STAR Homes program had permitted.	No height limits on multifamily buildings. Same eligibility provisions as the ENERGY STAR Multifamily New Construction (ESMFNC) program	Aligning building eligibility for ESMFNC and ZERH Multifamily allows stakeholders to leverage both programs in a consistent manner where ZERH builds upon the performance of

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			ESMFNC, and to qualify for the 45L tax credit.
Certification Oversight	EPA-recognized Home Certification Organizations (HCOs) required to provide oversight.	DOE-recognized HCOs and Multifamily Review Organizations (MROs) for ZERH are required to provide oversight and quality assurance for raters and ZERH certifications.	DOE-recognized HCOs and MROs for ZERH assure minimum oversight and quality assurance provisions for ZERH certifications. More information on DOE-recognized HCOs and MROs for ZERH is found here.